



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/582,230	07/21/2000	Takayoshi Hiraga	0670-248	1846

7590 03/01/2005
Robinson intellectual Property Law Office
PMB 955
21010 Southbank Street
Potomac Falls, VA 20165

EXAMINER

CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
----------	--------------

2872

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No. 09/582,230	Applicant(s) HIRAGA ET AL.	
	Examiner Audrey Y. Chang	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24 is/are rejected.
- 7) ☒ Claim(s) 20-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 20, 2004 has been entered.
2. This Office Action is also in response to applicant's amendment filed on December 20, 2004, which has been entered into the file.
3. By this amendment, the applicant has amended claims 20, 22, and 24.
4. Claims 20-24 remain pending in this application.

Claim Objections

5. Claims 20-24 are objected to because of the following informalities:

(1). **Claim 20 has been amended** to include the phrase "so as to make a diameter of each of said plurality of light spots *smaller all together*" that is confusing and indefinite since it is not clear it is *smaller as compared to what*, and also it is not clear it is smaller "*all together*" with what. The applicant is respectfully noted that "smaller" is a relative term, it has to be measured with respect to something; otherwise the term would be indefinite. It is not clear if the light spots are smaller *with respect to diameters of light spots* that are not aberration corrected.

(2). **Claim 22 has been amended** to include the phrase "a *train* of hologram patterns in said hologram member is arranged along a direction of a longer axis of an ellipsoidal spot area of said real laser light source" that is really confusing and indefinite. It is really unclear what is being claimed here. It is not clear if the "*train* of hologram patterns" means the *fringes pattern* of the hologram or not. It is

Art Unit: 2872

also not clear what is considered to be the “ellipsoidal spot area of said real light source”. Where is this ellipsoidal spot area and what does it have anything to do with the “train” of the holographic pattern. The scopes of the claim are really unclear.

(3). **Claim 24 has been amended** to include the phrase “said distribution of optical intensity being a *distribution of radial directions* from the center of the light area” is confusing and indefinite since it is not clear what is considered to be “distribution of a radial directions”. It is not clear if this means the distribution of the optical intensity is radially extended and uniform.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Harris (PN. 5,422,753).**

Harris teaches a scanning optical device that is comprised of a *single real laser light source* (12), an *optical section* (18) that serves as the *light spot forming optical element* for forming a light spot on a *recording medium* (22) and a *binary diffractive optical element* (20) for controlling the beam *intensity* of the light on the recording medium, (please see Figures 2 and 2A, columns 5-6). **Harris** teaches that the binary diffractive structure has a relief phase grating structure such that when the **single** incident light beam (50) incidents upon the diffraction grating it diffracts the light to provide a *zero order light beam* (52) which causes a *light spot formed* on the recording medium and the diffraction grating causes the light beam (52) and therefore the single light spot to have a *uniform intensity*, (please see column 5, line 64 to column 6, line 14, Figures 2 and 2A).

Claim 24 has been amended to include the feature “said distribution of optical intensity being a distribution of radial directions from the center of the light area”. This phrase is confusing and being examined in the broadest interpretation as “the distribution of the optical intensity is radially extended and uniform“. This feature is implicitly included in the disclosure of Harris since a light spot has a finite extended in all radial directions, (i.e. a circular spot, for instance). Harris teaches that the light spot has a uniform intensity that means the intensity has to be uniformly distributed in all radial direction.

This reference has met all the limitations of the claims with the exception that it does teach explicitly that the binary diffractive structure is a hologram member. However, by definition a hologram member has a diffractive structure and the only difference for this binary diffractive optical structure to be a hologram member or not is if it is made *holographically or not*. But it is well known in the art to make diffractive structure holographically, and the *method* for making the binary diffractive optical structure does not distinguish the function of the binary diffractive structure in controlling the intensity of the light spot. Such modification or difference would therefore have been considered as an obvious matter of design choice to one skilled in the art in choosing a method for making the element and with no patentable distinction or given no patentable weight. Although Harris teaches that the binary diffractive optical element is provided after the light passes through the beam forming optical section, however this function of the diffractive structure for controlling the beam intensity does not change by the order of the arrangement. Such modification is therefore obvious to one skilled in the art since it only involves rearranging parts in the device.

This reference also does not teach explicitly that the device is an optical pickup device. However, this recitation has not been given patentable weight because it has been held that a preamble is denied the effect of limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the

Art Unit: 2872

introductory clause. *Kropa v. Robie*, 88 USPQ 478, (CCPA 1951). In this case the servo beam spot formation is fully disclosed by the Harris reference.

Allowable Subject Matter

8. Claims 20-23 would be allowable if rewritten or amended to overcome the objections set forth in this Office action.

9. The following is a **statement of reasons** for the indication of allowable subject matter: of the prior art references considered, none has disclosed an optical pickup device having a *single real laser light source* and a *hologram member* that diffracts the light from the laser light source to form at *least two imaginary light sources*. The *hologram patterns* of the hologram member is *determined* to give diffraction light an *inverse aberration* of an aberration caused by optical elements in the optical path from the real light source to the recording medium wherein the aberration includes a *sub aberration caused upon diffraction in forming the imaginary laser light sources* so that the *aberration is canceled* and a *diameter* of each of a plurality of light spots formed on the recording medium is *diminished with respect to non-aberration corrected light spot*.

Response to Arguments

10. Applicant's arguments filed on December 20, 2004 have been fully considered but they are not persuasive. The amended claims 20, 22 and 24 have been fully considered and they are objected or rejected for the reasons stated above.

11. Applicant's arguments are mainly drawn to the amendments to the claims and they have been fully addressed in the paragraphs above.

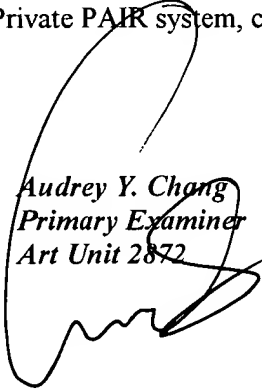
Art Unit: 2872

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Audrey Y. Chang
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.